

CLAIMS

What is claimed is:

1. A damped flexible cable for use in a magnetic memory device, comprising:
an electrically conductive lead;
a vibration damping material disposed adjacent to the electrical lead; and
an insulating material surrounding the vibration damping material and at least a portion of the electrical lead.
2. A damped flexible cable as recited in claim 1 wherein the vibration damping material is completely enclosed within the insulation, and wherein end portions of the electrically conductive lead is exposed.
3. A damped flexible cable as recited in claim 1 wherein the vibration damping material includes first and second layers disposed at opposite sides of the electrically conductive lead.
4. A damped flexible cable as recited in claim 1 further comprising a plurality of electrically conductive leads a portion of which are parallel to one another.
5. A damped flexible cable as recited in claim 1 wherein the damping material has dynamic loss modulus of 50% to 110%.
6. A damped flexible cable as recited in claim 1 wherein the damping material covers an area at least $\frac{1}{3}$ the area of the flexible cable.
7. A damped flexible cable as recited in claim 1 wherein the damping material covers an area at least $\frac{1}{2}$ the area of the flexible cable.

8. A damped flexible cable as recited in claim 1 wherein the damping material is configured with relatively wide areas and relatively narrow areas as measured in a lateral dimension.
9. A damped flexible cable as recited in claim 1 wherein the damping material is configured with relatively thick portions and relatively thin portions.
10. A head suspension assembly for use in a magnetic recording device, comprising:
 - a suspension;
 - a magnetic transducer connected with the suspension; and
 - a flexible cable electrically connected with the transducer, the flexible cable further comprising:
 - an electrically conductive lead;
 - a vibration damping material disposed adjacent to the electrical lead; and
 - an insulating material surrounding the vibration damping material and at least a portion of the electrical lead.
11. A magnetic hard disk drive, comprising:
 - a housing;
 - a magnetic disk rotationally mounted within the housing;
 - a head suspension assembly pivotally mounted within the housing;
 - an amplifier circuit; and
 - a flexible cable electrically connected with the amplifier circuit, the flexible cable further comprising:
 - an electrically conductive lead;
 - a vibration damping material disposed adjacent to the electrical lead; and
 - an insulating material surrounding the vibration damping material and at least a portion of the electrical lead.
12. A flexible cable for use in a magnetic memory device, comprising:
 - a first layer of electrically insulating material;

a second layer of electrically insulating material;
an electrical lead; and
a vibration damping material;
wherein the electrical lead and the vibration damping material are sandwiched between the first and second layer of electrically insulating material.

13. A method for constructing a flexible cable, comprising:
providing a first layer of electrically insulating material;
forming an electrically conductive lead;
forming a layer of vibration damping material;
applying a second layer of electrically insulating material opposite the first layer of insulating material so as to sandwich the electrically conductive lead and the vibration damping material between the first and second layers of electrically insulating material; and
applying pressure to the first and second electrically insulating layers.
14. A method as recited in claim 13 further comprising the step of heating the first and second electrically insulating material, the electrically conductive lead, and the vibration damping material.
15. A method as recited in claim 13 further comprising the step of applying an adhesive to at least one of the first and second layers of insulating material.
16. A method as recited in claim 13 further comprising the step of forming a second layer of vibration damping material at a side of the lead opposite the first layer of vibration damping material.